

(A) $R_{N\text{-aryl}}$ where $R_{N\text{-aryl}}$ is phenyl, 1-naphthyl and 2-naphthyl unsubstituted or substituted with one, two, three or four of the following substituents which can be the same or different and are:

- (1) $C_1\text{-}C_6$ alkyl,
- (2) -F, -Cl, -Br, or -I,
- (3) -OH,
- (4) -NO₂,
- (5) -CO-OH,
- (6) -C≡N,
- (7) -CO-NR_{N-2}R_{N-3} where R_{N-2} and R_{N-3} are the same or different

and are:

- (a) -H,
- (b) $C_1\text{-}C_6$ alkyl unsubstituted or substituted with one
 - (i) -OH, or
 - (ii) -NH₂,
- (c) $C_1\text{-}C_6$ alkyl unsubstituted or substituted with one to three -F, -Cl, -Br, or -I,
- (d) $C_3\text{-}C_7$ cycloalkyl,
- (e) $-(C_1\text{-}C_2 \text{ alkyl})\text{-}(C_3\text{-}C_7 \text{ cycloalkyl})$,
- (f) $-(C_1\text{-}C_6 \text{ alkyl})\text{-O}\text{-}(C_1\text{-}C_3 \text{ alkyl})$,
- (g) $C_1\text{-}C_6$ alkenyl with one or two double bonds,
- (h) $C_1\text{-}C_6$ alkynyl with one or two triple bonds,
- (i) $C_1\text{-}C_6$ alkyl chain with one double bond and one triple bond,
- (j) -R_{1-aryl} where R_{1-aryl} is as defined above, or
- (k) -R_{1-heteroaryl} where R_{1-heteroaryl} is as defined above,
- (8) -CO-(C₃-C₁₂ alkyl),
- (9) -CO-(C₃-C₆ cycloalkyl),
- (10) -CO-R_{1-heteroaryl} where R_{1-heteroaryl} is as defined above,
- (11) -CO-R_{1-heterocycle} where R_{1-heterocycle} is as defined above,

(12) $-\text{CO}-\text{R}_{\text{N-4}}$ where $\text{R}_{\text{N-4}}$ is morpholinyl, thiomorpholinyl, piperazinyl, piperidinyl or pyrrolidinyl where each group is unsubstituted or substituted with one or two $\text{C}_1\text{-C}_3$ alkyl,

(13) $-\text{CO}-\text{O}-\text{R}_{\text{N-5}}$ where $\text{R}_{\text{N-5}}$ is:

(a) $\text{C}_1\text{-C}_6$ alkyl, or

(b) $-(\text{CH}_2)_{0-2}-(\text{R}_{1\text{-aryl}})$ where $\text{R}_{1\text{-aryl}}$ is as defined above,

(14) $-\text{SO}_2-\text{NR}_{\text{N-2}}\text{R}_{\text{N-3}}$ where $\text{R}_{\text{N-2}}$ and $\text{R}_{\text{N-3}}$ are as defined above,

(15) $-\text{SO}-(\text{C}_1\text{-C}_8 \text{ alkyl})$,

(16) $-\text{SO}_2-(\text{C}_3\text{-C}_{12} \text{ alkyl})$,

(17) $-\text{NH}-\text{CO}-\text{O}-\text{R}_{\text{N-5}}$ where $\text{R}_{\text{N-5}}$ is as defined above,

(18) $-\text{NH}-\text{CO}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(19) $-\text{N}-\text{CS}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(20) $-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})-\text{CO}-\text{R}_{\text{N-5}}$ where $\text{R}_{\text{N-5}}$ is as defined above,

(21) $-\text{NR}_{\text{N-2}}\text{R}_{\text{N-3}}$ where $\text{R}_{\text{N-2}}$ and $\text{R}_{\text{N-3}}$ can be the same or different

and are as defined above,

(22) $-\text{R}_{\text{N-4}}$ where $\text{R}_{\text{N-4}}$ is as defined above,

(23) $-\text{O}-\text{CO}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,

(24) $-\text{O}-\text{CO}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(25) $-\text{O}-\text{CS}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(26) $-\text{O}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,

(27) $-\text{O}-(\text{C}_2\text{-C}_5 \text{ alkyl})-\text{COOH}$,

(28) $-\text{S}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,

(29) $\text{C}_1\text{-C}_6$ alkyl unsubstituted or substituted with 1, 2, 3, 4, or 5 –

F,

(30) $-\text{O}-(\text{C}_1\text{-C}_6 \text{ alkyl unsubstituted or substituted with 1, 2, 3, 4, or$

5 –F, or

(31) $-\text{O}$ -phenyl,

(B) $-\text{R}_{\text{N-heteroaryl}}$ where $\text{R}_{\text{N-heteroaryl}}$ is:

(1) pyridinyl,

(2) pyrimidinyl,

(3) quinolinyl,

- (4) indenyl,
- (5) indanyl,
- (6) benzothiophenyl,
- (7) indolyl,
- (8) indolinyl,
- (9) pyridazinyl,
- (10) pyrazinyl,
- (11) isoindolyl,
- (12) isoquinolyl,
- (13) quinazolinyl,
- (14) quinoxalinyl,
- (15) phthalazinyl,
- (16) imidazolyl,
- (17) isoxazolyl,
- (18) pyrazolyl,
- (19) oxazolyl,
- (20) thiazolyl,
- (21) indolizinyll,
- (22) indazolyl,
- (23) benzothiazolyl,
- (24) benzimidazolyl,
- (25) benzofuranyl,
- (26) furanyl,
- (27) thienyl,
- (28) pyrrolyl,
- (29) oxadiazolyl,
- (30) thiadiazolyl,
- (31) triazolyl,
- (32) tetrazolyl,
- (33) 1, 4-benzodioxan
- (34) purinyl,

- (35) oxazolopyridinyl,
- (36) imidazopyridinyl,
- (37) isothiazolyl,
- (38) naphthyridinyl,
- (39) cinnolinyl,
- (40) carbazolyl,
- (41) beta-carbolinyl,
- (42) isochromanlyl,
- (43) chromanlyl,
- (44) furazanlyl,
- (45) tetrahydroisoquinoline,
- (46) isoindolinyl,
- (47) isobenzotetrahydrofuranyl,
- (48) isobenzotetrahydrothienyl,
- (49) isobenzothiophenyl,
- (50) benzoxazolyl, or
- (51) pyridopyridinyl,

where the $R_{N\text{-heteroaryl}}$ group is bonded by any atom of the parent $R_{N\text{-heteroaryl}}$ group substituted by hydrogen such that the new bond to the $R_{N\text{-heteroaryl}}$ group replaces the hydrogen atom and its bond, where heteroaryl is unsubstituted or substituted with one or two:

- (1) $C_1\text{-}C_6$ alkyl,
- (2) -F, -Cl, -Br, or -I,
- (3) -OH,
- (4) -NO₂,
- (5) -CO-OH,
- (6) -C≡N,
- (7) -CO-NR_{N-2}R_{N-3} where R_{N-2} and R_{N-3} are the same or different and are as defined above,
- (8) -CO-(C₃-C₁₂ alkyl),
- (9) -CO-(C₃-C₆ cycloalkyl),

(10) $-\text{CO}-\text{R}_{1\text{-heteroaryl}}$ where $\text{R}_{1\text{-heteroaryl}}$ is as defined above,
 (11) $-\text{CO}-\text{R}_{1\text{-heterocycle}}$ where $\text{R}_{1\text{-heterocycle}}$ is as defined above,
 (12) $-\text{CO}-\text{R}_{\text{N-4}}$ where $\text{R}_{\text{N-4}}$ is morpholinyl, thiomorpholinyl, piperazinyl, piperidinyl or pyrrolidinyl where each group is unsubstituted or substituted with one or two $\text{C}_1\text{-C}_3$ alkyl,

(13) $-\text{CO}-\text{O}-\text{R}_{\text{N-5}}$ where $\text{R}_{\text{N-5}}$ is:

(a) $\text{C}_1\text{-C}_6$ alkyl, or

(b) $-(\text{CH}_2)_{0-2}-(\text{R}_{1\text{-aryl}})$ where $\text{R}_{1\text{-aryl}}$ is as defined

above,

(14) $-\text{SO}_2-\text{NR}_{\text{N-2}}\text{R}_{\text{N-3}}$ where $\text{R}_{\text{N-2}}$ and $\text{R}_{\text{N-3}}$ are as defined

above,

(15) $-\text{SO}-(\text{C}_1\text{-C}_8 \text{ alkyl})$,

(16) $-\text{SO}_2-(\text{C}_3\text{-C}_{12} \text{ alkyl})$,

(17) $-\text{NH}-\text{CO}-\text{O}-\text{R}_{\text{N-5}}$ where $\text{R}_{\text{N-5}}$ is as defined above,

(18) $-\text{NH}-\text{CO}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(19) $-\text{N}-\text{CS}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(20) $-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})-\text{CO}-\text{R}_{\text{N-5}}$ where $\text{R}_{\text{N-5}}$ is as defined

above,

(21) $-\text{NR}_{\text{N-2}}\text{R}_{\text{N-3}}$ where $\text{R}_{\text{N-2}}$ and $\text{R}_{\text{N-3}}$ can be the same or

different and are as defined above,

(22) $-\text{R}_{\text{N-4}}$ where $\text{R}_{\text{N-4}}$ is as defined above,

(23) $-\text{O}-\text{CO}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,

(24) $-\text{O}-\text{CO}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(25) $-\text{O}-\text{CS}-\text{N}(\text{C}_1\text{-C}_3 \text{ alkyl})_2$,

(26) $-\text{O}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,

(27) $-\text{O}-(\text{C}_2\text{-C}_5 \text{ alkyl})-\text{COOH}$, or

(28) $-\text{S}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,

(C) $-\text{R}_{\text{N-aryl}}-\text{R}_{\text{N-aryl}}$ where $-\text{R}_{\text{N-aryl}}$ is as defined above,

(D) $-\text{R}_{\text{N-aryl}}-\text{R}_{\text{N-heteroaryl}}$ where $-\text{R}_{\text{N-aryl}}$ and $-\text{R}_{\text{N-heteroaryl}}$ are as defined above,

(E) $-\text{R}_{\text{N-heteroaryl}}-\text{R}_{\text{N-aryl}}$ where $-\text{R}_{\text{N-aryl}}$ and $-\text{R}_{\text{N-heteroaryl}}$ are as defined above,

(F) $-\text{R}_{\text{N-heteroaryl}}-\text{R}_{\text{N-heteroaryl}}$ where $\text{R}_{\text{N-heteroaryl}}$ is as defined above,

- (G) $-R_{N-aryl}-O-R_{N-aryl}$ where $-R_{N-aryl}$ is as defined above,
- (H) $-R_{N-aryl}-S-R_{N-aryl}$ where $-R_{N-aryl}$ is as defined above,
- (I) $-R_{N-heteroaryl}-O-R_{N-heteroaryl}$ where $R_{N-heteroaryl}$ is as defined above,
- (J) $-R_{N-heteroaryl}-S-R_{N-heteroaryl}$ where $R_{N-heteroaryl}$ is as defined above,
- (K) $-R_{N-aryl}-CO-R_{N-aryl}$ where $-R_{N-aryl}$ is as defined above,
- (L) $-R_{N-aryl}-CO-R_{N-heteroaryl}$ where $-R_{N-aryl}$ and $R_{N-heteroaryl}$ are as defined

above,

- (M) $-R_{N-aryl}-SO_2-R_{N-aryl}$ where $-R_{N-aryl}$ is as defined above,
- (N) $-R_{N-heteroaryl}-CO-R_{N-heteroaryl}$ where $R_{N-heteroaryl}$ is as defined above,
- (O) $-R_{N-heteroaryl}-SO_2-R_{N-heteroaryl}$ where $R_{N-heteroaryl}$ is as defined above,
- (P) $-R_{N-aryl}-O-(C_1-C_8 \text{ alkyl})\text{-phenyl}$ where R_{N-aryl} is as defined above,
- (Q) $-R_{N-aryl}-S-(C_1-C_8 \text{ alkyl})\text{-phenyl}$ where R_{N-aryl} is as defined above,
- (R) $-R_{N-heteroaryl}-O-(C_1-C_8 \text{ alkyl})\text{-phenyl}$ where $R_{N-heteroaryl}$ is as defined

above, or

- (S) $-R_{N-heteroaryl}-S-(C_1-C_8 \text{ alkyl})\text{-phenyl}$ where $R_{N-heteroaryl}$ is as defined

above.

65. (New) A method according to claim 64, wherein X_N is $-CO-$.

66. (New) A method according to 65, wherein R_{N-1} is R_{N-aryl} where R_{N-aryl} is phenyl, 1-naphthyl and 2-naphthyl unsubstituted or substituted with one, two, three or four of the following substituents which can be the same or different and are:

- (1) C_1-C_6 alkyl,
 - (2) $-F$, $-Cl$, $-Br$, or $-I$,
 - (3) $-OH$,
 - (4) $-NO_2$,
 - (5) $-CO-OH$,
 - (6) $-C\equiv N$,
 - (7) $-CO-NR_{N-2}R_{N-3}$ where R_{N-2} and R_{N-3} are the same or different and are as defined
- above,
- (8) $-CO-(C_3-C_{12} \text{ alkyl})$,

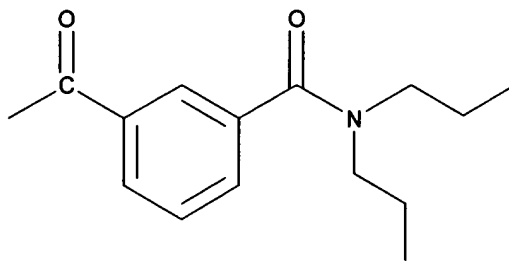
- (9) -CO-(C₃-C₆ cycloalkyl),
- (10) -CO-R_{1-heteroaryl} where R_{1-heteroaryl} is as defined above,
- (11) -CO-R_{1-heterocycle} where R_{1-heterocycle} is as defined above,
- (12) -CO-R_{N-4} where R_{N-4} is morpholinyl, thiomorpholinyl, piperazinyl, piperidinyl or pyrrolidinyl where each group is unsubstituted or substituted with one or two C₁-C₃ alkyl,
- (13) -CO-O-R_{N-5} where R_{N-5} is as defined above,
- (14) -SO₂-NR_{N-2}R_{N-3} where R_{N-2} and R_{N-3} are as defined above,
- (15) -SO-(C₁-C₈ alkyl),
- (16) -SO₂-(C₃-C₁₂ alkyl),
- (17) -NH-CO-O-R_{N-5} where R_{N-5} is as defined above,
- (18) -NH-CO-N(C₁-C₃ alkyl)₂,
- (19) -N-CS-N(C₁-C₃ alkyl)₂,
- (20) -N(C₁-C₃ alkyl)-CO-R_{N-5} where R_{N-5} is as defined above,
- (21) -NR_{N-2}R_{N-3} where R_{N-2} and R_{N-3} can be the same or different and are as defined above,
- (22) -R_{N-4} where R_{N-4} is as defined above,
- (23) -O-CO-(C₁-C₆ alkyl),
- (24) -O-CO-N(C₁-C₃ alkyl)₂,
- (25) -O-CS-N(C₁-C₃ alkyl)₂,
- (26) -O-(C₁-C₆ alkyl),
- (27) -O-(C₂-C₅ alkyl)-COOH,
- (28) -S-(C₁-C₆ alkyl),
- (29) C₁-C₆ alkyl unsubstituted or substituted with 1, 2, 3, 4, or 5 -F,
- (30) -O-(C₁-C₆ alkyl unsubstituted or substituted with 1, 2, 3, 4, or 5 -F, or
- (31) -O-phenyl.

67. (New) A method according to claim 66, wherein R_{N-1} is substituted or unsubstituted R_{N-aryl}.

68. (New) A method according to claim 67, wherein R_{N-aryl} is substituted or unsubstituted phenyl.

69. (New) A method according to claim 68, wherein phenyl is substituted with –
CONPr₂.

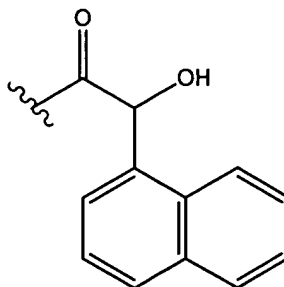
70. (New) A method according to claim 69, wherein R_N is



71. (New) A method according to claim 67, wherein R_{N-aryl} is substituted 1-naphthyl.

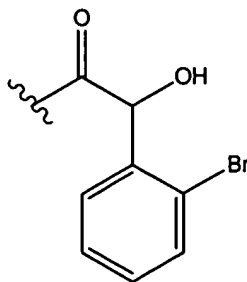
72. (New) A method according to claim 71, wherein 1-naphthyl is substituted with -
CHOH.

73. (New) A method according to claim 72, wherein R_N is:



74. (New) A method according to claim 68, wherein phenyl is substituted with -
CHOH and -Br.

75. (New) A method according to claim 74, wherein R_N is:



76. (New) A method according to claim 1, wherein R_N is:

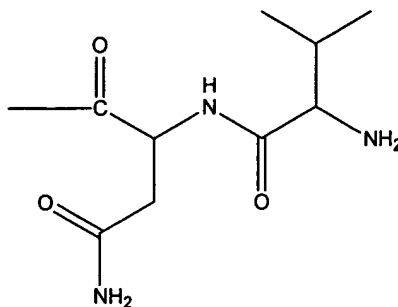
(III) $-\text{CO}-(\text{C}_1\text{-C}_6 \text{ alkyl})$ where alkyl is unsubstituted or substituted with:

- (A) $-\text{OH}$,
- (B) $-\text{C}_1\text{-C}_6 \text{ alkoxy}$,
- (C) $-\text{C}_1\text{-C}_6 \text{ thioalkoxy}$,
- (D) $-\text{CO-O-}R_{N-8}$ where R_{N-8} is $-\text{H}$, $\text{C}_1\text{-C}_6 \text{ alkyl}$ or $-\text{phenyl}$,
- (E) $-\text{CO-NR}_{N-2}R_{N-3}$ where R_{N-2} and R_{N-3} are the same or different and are as defined above,
- (F) $-\text{CO-}R_{N-4}$ where R_{N-4} is as defined above,
- (G) $-\text{SO}_2-(\text{C}_1\text{-C}_8 \text{ alkyl})$,
- (H) $-\text{SO}_2\text{-NR}_{N-2}R_{N-3}$ where R_{N-2} and R_{N-3} are the same or different and are as defined above,
- (I) $-\text{NH-CO}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,
- (J) $-\text{NH-CO-O-}R_{N-8}$ where R_{N-8} is as defined above,
- (K) $-\text{NR}_{N-2}R_{N-3}$ where R_{N-2} and R_{N-3} are the same or different and are as defined above,
- (L) $-\text{R}_{N-4}$ where R_{N-4} is as defined above,
- (M) $-\text{O-CO}-(\text{C}_1\text{-C}_6 \text{ alkyl})$,
- (N) $-\text{O-CO-NR}_{N-8}R_{N-8}$ where R_{N-8} are the same or different and are as defined above, or
- (O) $-\text{O}-(\text{C}_1\text{-C}_5 \text{ alkyl})\text{-COOH}$.

77. (New) A method according to claim 76, wherein R_N is substituted $-\text{CO}-(\text{C}_1\text{-C}_6 \text{ alkyl})$.

78. (New) A method according to claim 77, wherein R_N is substituted with $-\text{OH}$, $-\text{C}_1\text{-C}_6 \text{ thioalkoxy}$, $-\text{CO-O-}R_{N-8}$, where R_{N-8} is $-\text{H}$, $\text{C}_1\text{-C}_6 \text{ alkyl}$ or $-\text{phenyl}$, or $-\text{CO-NR}_{N-2}R_{N-3}$, where R_{N-2} and R_{N-3} are the same or different and are as defined above.

79. (New) A method according to claim 78, wherein R_N is substituted -CO-(C₂ alkyl).
80. (New) A method according to claim 79, wherein -CO-(C₂ alkyl) is substituted with -CO-NR_{N-2}R_{N-3}.
81. (New) A method according to claim 80, wherein -CO-NR_{N-2}R_{N-3} is -CO-NH₂.
82. (New) A method according to claim 77, wherein R_N is doubly substituted -CO-(C₁-C₆ alkyl).
83. (New) A method according to claim 82, wherein one of the substituted with -OH, -C₁-C₆ thioalkoxy, -CO-O-R_{N-8}, where R_{N-8} is -H, C₁-C₆ alkyl or -phenyl, or -CO-NR_{N-2}R_{N-3}, where R_{N-2} and R_{N-3} are the same or different and are as defined above; and the other substitution is with -NH-CO-(C₁-C₆ alkyl).
84. (New) A method according to claim 83, wherein -NH-CO-(C₁-C₆ alkyl) is substituted.
85. (New) A method according to claim 84, wherein C₁-C₆ alkyl is C₂, one substituent is -CONH₂ and one substituent is -NH-CO-C₄ alkyl.
86. (New) A method according to claim 85, wherein C₄ alkyl is substituted with -NH₂.
87. (New) A method according to claim 86, wherein R_N is



88. (New) A method according to claim 1, wherein R_C is:

(II) $-C(R_{C-1})(R_{C-2})-CO-NH-R_{C-3}$ where R_{C-1} and R_{C-2} are the same or different and are:

(A) -H,

(B) $-C_1-C_6$ alkyl,

(C) $-(C_1-C_4 \text{ alkyl})-R_{C'-\text{aryl}}$ where $R_{C'-\text{aryl}}$ is as defined for $R_{N-\text{aryl}}$,

(D) $-(C_1-C_4 \text{ alkyl})-R_{C-\text{heteroaryl}}$ where $R_{C-\text{heteroaryl}}$ is as defined for $R_{N-\text{heteroaryl}}$,

and $R_{N-\text{heteroaryl}}$ is as defined above,

(E) $-(C_1-C_4 \text{ alkyl})-R_{C-\text{heterocycle}}$ where $R_{C-\text{heterocycle}}$ is as defined for $R_{N-\text{heterocycle}}$, and $R_{N-\text{heterocycle}}$ is as defined above,

(F) $-R_{C-\text{heteroaryl}}$ where $R_{C-\text{heteroaryl}}$ is as defined above,

(G) $-R_{C-\text{heterocycle}}$ where $R_{C-\text{heterocycle}}$ is as defined above,

(H) $-(CH_2)_{1-4}-OH$,

(I) $-(CH_2)_{1-4}-R_{C-4}-(CH_2)_{1-4}-R_{C'-\text{aryl}}$ where R_{C-4} is $-O-$, $-S-$, $-NH-$, or $-NR_{C-5}-$ where R_{C-5} is C_1-C_6 alkyl, and where $R_{C'-\text{aryl}}$ is as defined above,

(J) $-(CH_2)_{1-4}-R_{C-4}-(CH_2)_{1-4}-R_{C-\text{heteroaryl}}$ where R_{C-4} and $R_{C-\text{heteroaryl}}$ are as defined above, or

(K) $-R_{C'-\text{aryl}}$ where $R_{C'-\text{aryl}}$ is as defined above,

and where R_{C-3} is:

(A) -H,

(B) $-C_1-C_6$ alkyl,

(C) $-R_{C'-\text{aryl}}$ where $R_{C'-\text{aryl}}$ is as defined above,

(D) $-R_{C-\text{heteroaryl}}$ where $R_{C-\text{heteroaryl}}$ is as defined above,

(E) $-R_{C-\text{heterocycle}}$ where $R_{C-\text{heterocycle}}$ is as defined above,